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ABSTRACT

A fictional story was written in three versions: (1) traditional prose of 1,620 words, (2) medium telegraphic form of 947 words, and (3) highly condensed telegraphic form of 455 words. Two hundred and ten braille readers from grades 6 to 9 were assigned to one of the three treatment versions. Nine groups were formed on the basis of comparable age, IQ, and reading achievement. Within each group assigned to a particular version, one group was assigned to one of the three recall conditions: set relations, multiple choice, and reconstruction. Recall was measured immediately after reading the assigned version and again 1 week later without rereading the passage. Analysis of the data revealed that for the set relations groups, versions 1 and 2 read at significantly higher rates that version 3 (88.86 and 75.40 compared to 46.53 words per minute). For the multiple choice groups, versions 2 and 3 read significantly slower than version 1. For the reconstruction groups, version 3 read significantly slower than version 1. Results of all three recall conditions revealed little difference among the versions with respect to recall (either immediate or delayed) of the essential information in the passages, with one exception--the inferior performance of version 3 subjects on the common multiple-choice items during the delayed recall task. Tables and references are included. (AW)

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Comprehension of Full Length and Telegraphic Prose Among Braille Readers

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Introduction

The general purpose of this study was to determine the feasibility of developing telegraphic reading materials. The possibility of developing telegraphic materials was based upon the assumption that written and spoken language contains many words and word sequences which are unnecessary for the comprehension of a message. That is, in the usual message, there are words, phrases, and sometimes even sentences which add no further information.

The fact that redundancy is present in language and that Ss are aware of this redundancy has been demonstrated in a number of ways.

One way in which redundancy has been demonstrated was by requiring Ss to replace missing words in sentences. Morrison and Black (2) found that Ss had little difficulty in finding words which were appropriate substitutions for the deleted words. Garner (1) has presented an excellent review of the language redundancy studies.

The specific goal of this study was concerned with the possibility of modifying braille material so that information input rate could be increased for braille readers. In attempting to accomplish this goal, low information words, phrases, and sentences were eliminated from more traditional prose materials, thereby greatly reducing the total number of braille characters in the telegraphic passages.

Method

Materials. A fictional story concerning two warring African nations was written in full prose, traditional style, resulting in a 1620-word passage. In order to operationally define the important information in the passage, the story was written so that the central ideas of the passage were analyzable in terms of basic set relations. Important information was defined as material which described the set relations. Unimportant information was defined as narrative or descriptive material which was unrelated to the set relations. Next, a medium telegraphic condensation of the same story (947-word passage) was written in traditional sentence and paragraph form, but with a 42 per cent reduction in narrative and background material of the original passage. And finally, a highly condensed version of the story was written in which the total number of words was reduced to 455. The style of this passage was similar to that of a telegram, and achieved a 72 per cent

reduction of the original passage. The following are excerpts from the three versions:

Traditional Version A	Medium Telegraphic Version B	Short Telegraphic Version C
In the year 1800 on the continent of Africa, two unfriendly nations existed, the nation of Mambo and the nation of Yam. The Nile River separated these two nations.	In the year 1800 on the continent of Africa, two unfriendly nations existed, Mambo and Yam. The Nile River separated them.	In Africa, in 1800, the Nile River separated two unfriendly nations, Mambo and Yam.

Subjects. A total of 210 braille readers in grades six, seven, eight, and nine were tested. With the exception of 12 subjects, all attended state residential and day school classes for visually impaired children and youth. All subjects had received formal braille instruction for four years or more.

Procedure and Design. All subjects were assigned to one of the three treatment versions: Traditional (A), Medium Telegraphic (B), and Short Telegraphic (C). Subjects were assigned to the nine groups on the basis of age, IQ, and reading achievement. The objective was to form groups which had comparable means and variances on these three variables. However, for some subjects, information on all three variables was not available. For these subjects, assignment was based upon whatever information was available. The means, ranges, and standard deviations for each of the nine groups on the three variables is presented in Table 3. Three 1 x 9 analyses of variance was performed. The resulting F values were: .27 for age, .24 for IQ, and 1.02 for reading achievement. The results indicate that all groups were compar-

able on these three variables.

Within each group assigned to a particular version, there were three subgroups assigned to one of the three recall conditions: set relations (1), multiple choice (2), and reconstruction (3). The general design of the study is illustrated as follows:

TREATMENT VERSION	RECALL CONDITION		
	Set Relations (1)	Multiple Choice (2)	Reconstruction (3)
Traditional (A)	A-1	A-2	A-3
Medium Telegraphic (B)	B-1	B-2	B-3
Short Telegraphic (C)	C-1	C-2	C-3

Recall was measured immediately after reading the assigned version and again one week later without rereading the passage. Each subject was retested in the same recall condition as the one originally assigned.

Results

Examination of reading rates (wpm) revealed some interesting and unexpected results. The analysis of wpm among the set relation groups revealed that there was no difference in average reading rates between the traditional and medium telegraphic versions (88.86 wpm compared to 75.40 wpm), but there was a significant difference between these two versions and the short telegraphic version (46.53 wpm). Comparison of reading rates among the multiple choice groups indicated no difference between the medium and short telegraphic versions, but both groups read at significantly ($p < .01$) slower rates that the traditional version group. While the 1 x 3 analysis of variance was not significant for the reconstruction groups, the non-parametric analyses were.

Individual comparisons of the reconstruction data revealed that subjects read version C at a significantly slower rate than version A. Version B was read at an Intermediate rate and did not differ significantly from either versions A or C.

The unexpected finding, which was most obvious among the set relation groups, was the marked reduction in reading speed for the group receiving the short telegraphic version. This version was read at approximately one-half the rate of the traditional version. While elimination of much descriptive and narrative material resulted in a significant savings in time, there was a reduction in reading rates for the shorter and informationally more compact version.

Analyses of the multiple choice data did reveal differences among the three treatment versions. For immediate recall, the results of the analysis of variance on the common items (items answered in all three versions) showed no significant difference among the groups. On the noncommon items, however, subjects who read version A performed significantly better than those who read versions B or C. This is not surprising since version A contained the answers to the noncommon items whereas versions B and C did not. Moreover, when performance on total items (noncommon and common items combined) was examined, the same differences were found. The differences on the total items were largely due to the superior performance of group A on the noncommon items. It appears that while the information relating to the noncommon items was not essential for a thorough understanding of the story, it was learned and recalled by the subjects.

Analysis of the reconstruction data revealed few significant dif-

ferences among the three versions. This is especially true for the immediate recall data in which a significant difference was found in only one of the 21 dependent variables, that is, the number of noun modifiers. Subjects reading version C used significantly fewer noun modifiers than those reading version A. However, this result is not necessarily indicative of a telegraphic writing among the version C reconstruction. Rather, it is most likely due to the fact that version A contained almost three times as many noun modifiers as version C. The finding that there were no significant differences among the three groups in total number of sentences or average words per sentence would suggest that the version C subjects did not tend to write in a telegraphic manner to any greater extent than the other groups.

For the most part, the results of all three recall conditions revealed little difference among the three versions with respect to the recall (either immediate or delayed) of the essential information contained in the passages. The one exception was the inferior performance of version C subjects on the common multiple choice items during the delayed recall task. However, the performance of the medium telegraphic group did not differ from the traditional group. In fact, none of the individual comparisons of the reconstruction data revealed any significant differences between the traditional and medium telegraphic versions. The differences were consistent between the traditional and short telegraphic versions. The unfamiliar style of the short telegraphic version undoubtedly contributed to those differences.

Conclusion

This investigation has demonstrated that it was possible to rewrite traditional materials in such a fashion that low information words, phrases and sentences could be eliminated without destroying the essential information in the materials. Furthermore, the learning and retention of the important information in such telegraphic materials was in almost all comparisons comparable to the learning and retention of the same information presented in traditional style. Although these results may have implications for the learning of prose materials by any learner, they suggest that more efficient learning materials may be developed for blind children. One alternative to the relatively slow methods of braille material presentation commonly employed in the education of visually impaired children is the preparation of informationally compact telegraphic materials. Braille material presented in a telegraphic style appears to be at least as efficient as material presented in conventional style, and requires less time to learn.

The ultimate application of the telegraphic concept to existing materials is dependent upon the development of objective reduction rules whereby extraneous information may be systematically eliminated from traditional materials. Further research is needed in order to develop such rules. Since most of the recall comparisons showed no significant differences, the preparation of informationally compact telegraphic material may be one alternative to the relatively slow methods of braille material presentation commonly employed in the education of visually impaired children and may provide an approach to the devel-

opment of a new type of educational materials for sighted children in regular classrooms.

REFERENCES

Garner, W. R. Uncertainty and Structure as Psychological Concepts. New York: Wiley, 1962.

Morrison, H.M., & Black, J. W. Prediction of missing words in sentences. J. Speech Dis., 1957, 22, 236-240.